

## INTERNATIONAL SEARCH REPORT

International Application No  
PCT/EP2004/052259

## A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 F02M31/20 F28D7/02 F28F13/06 F28F1/14

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 F28F F28D F02M

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 4 938 036 A (FOLEY JOHN J ET AL) 3 July 1990 (1990-07-03)	1-5,8, 11,14
Y	column 2, line 31 - column 4, line 63; figures	6,7,9, 10,12,15
X	US 5 251 603 A (KIMURA HIDEKI ET AL) 12 October 1993 (1993-10-12)	1,2,4,5, 8,11,13, 14
	column 2, line 45 - column 3, line 25; figure 2 column 3, line 65 - column 4, line 28; figures 5,6 column 4, line 42 - line 62; figures 7,8 ----- -/--	

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

## \* Special categories of cited documents :

- \*A\* document defining the general state of the art which is not considered to be of particular relevance
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- \*Y\* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
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Date of the actual completion of the international search

29 November 2004

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03/12/2004

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y A	DE 37 02 963 A (SUEDEUTSCHE KUEHLER BEHR) 11 August 1988 (1988-08-11) column 3, line 45 - column 4, line 29; figures	6,12,15 1,2,4,5, 8,10,12, 14
Y A	FR 69 567 E (SOCIÉTÉ ANONYME DES USINES CHAUSSON) 10 November 1958 (1958-11-10) the whole document	7 1,2,4,5, 8,14,15
Y A	WO 98/51923 A (BENNETT TECHNOLOGIES L L C) 19 November 1998 (1998-11-19) the whole document	9,10 1-3,14
A	DE 34 43 085 A (KUEHNER GMBH & CIE) 13 June 1985 (1985-06-13) the whole document	1,2,4-6, 8,10,11, 13,14

# INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/EP2004/052259

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
US 4938036	A	03-07-1990	NONE	
US 5251603	A	12-10-1993	JP 4132446 U	08-12-1992
DE 3702963	A	11-08-1988	DE 3702963 A1	11-08-1988
FR 69567	E	10-11-1958	NONE	
WO 9851923	A	19-11-1998	AU 7377798 A	08-12-1998
			CA 2289859 A1	19-11-1998
			WO 9851923 A1	19-11-1998
			US 6216675 B1	17-04-2001
DE 3443085	A	13-06-1985	DE 8335036 U1	12-04-1984
			DE 3443085 A1	13-06-1985